

REMARKS

Withdrawal of the objection to the specification is noted with appreciation.

Rejected claims 3 and 8 have been cancelled without estoppel or disclaimer of the subject matter thereof that has been substantially incorporated into the respective independent claims.

Claims 1, 4-6, 9 and 10 have been rejected under 35 USC §101 as being drawn to non-statutory subject matter. This rejection is respectfully traversed.

These claims have been amended in consideration of the Examiner's comments and suggestions to define the invention in conformance with acceptable standards for defining statutory subject matter. Notably, these claims as amended identify very specific and substantial utility associated with designing a shape of blade, for example for an axial compressor, under specified computer operations, and are therefore amply definitive of tangible, real-world usefulness to satisfy statutory subject matter.

Regarding the Examiner's comments about the "tangible result", it should be noted that these claims as amended also variously recite unambiguous target or objective of obtaining Pareto solutions that optimize a relationship between various objective functions, where 'optimal' and derivative terms in the common parlance of the cited art in the field of this invention designate best or most favorable condition,

degree or amount. It is therefore respectfully submitted that these claims now define the invention in sufficiently concise terms to conform to requirements for definition of statutory subject matter, and that the rejection under 35 USC §101 should be withdrawn.

Claims 1, 4 and 9 have been rejected under 35 USC §102(b) as being anticipated by the Dennis et al. article. This rejection is respectfully traversed with respect to these claims as amended herein. Specifically, these claims now variously recite “determining the incidence toughness from first and second evaluation values of a parameter at first and second incident angles whose signs are, respectively, opposite to each other about an incident angle with respect to a design point on the blade”.

In addition, the dependent claims further specify such incident angles at a design point on the blade are (at opposite signs) 10° or less.

These aspects of the claimed invention are not disclosed or even suggested by the Dennis et al. article which is understood to be deficient of disclosure specifically regarding determining in any way the incident toughness from first and second evaluation values of a parameter at first and second incident angles whose signs are, respectively, opposite to each other about an incident angle at a design point on the blade. Nor is this reference understood to optimize operational stability by optimizing incident toughness with at least one other objective function of the types

defined by the Applicants. At best, this reference is understood to determine behavior characteristics for objective functions selected around each extremum determined during a design iteration, and to develop a set of vectors of optimized variables to use for computer optimization criteria. This reference analyzes a large number (e.g., 18) of identified parameters that define an airfoil shape (see: e.g., page 2, mid-right column to page 3, mid-left column), and none of these parameters bear any semblance, for example, to Applicants' claimed incident toughness. Nor does an analysis of the parameters identified in this reference yield the advantages, for example, of incidence toughness and pressure loss coefficient achieved with Applicants' claimed method, as described with reference to Figures 7-9 and the associated description appearing at page 22, line 12 to page 25, line 18. It is therefore respectfully submitted that the deficient disclosure of the Dennis et al. article fails to anticipate claims 1, 4 and 9 which are patentably distinguishable over the cited art.

Rejected claims 5 and 10 have been cancelled.

The Examiner is invited to contact the undersigned attorney of record to resolve any remaining issues that may expedite favorable disposition of this application.

Respectfully submitted,
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